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AUTHOR	Sims, Howard D.
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ABSTRACT

The need for higher education programs is being challenged, and unit cost studies may become an integral part of the funding process for junior colleges. This paper describes the major tasks in a cost study and reviews the problems encountered in the unit costing efforts. The main tasks are: (1) identifying units of measurement (the language used to convey cost information) e.g., the student credit hour; (2) classification of cost centers, usually functionally-grouped departments, and consistent assignment of cost by unit of product and service; (3) consistent data definitions, both conceptual and technical; (4) data collection, keying data to the functions of the study, whether it be for internal institutional analysis, external institutional comparison, or decision-making; (5) reporting and data utilization, restricting the latter to use for predetermined objectives; and (6) defining level of effort concepts in terms of either input-output orientation or planning and decision-making factors. (RN)

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A MASTER PLAN

for

UNIT COST STUDIES

among

COMMUNITY JUNIOR COLLEGES

By

Dr. Howard D. Sims
Director of Business Services and Management
Metropolitan Junior College District

JC 720 235

UNIVERSITY OF CALIF.
LOS ANGELES

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CLEARINGHOUSE FOR
JUNIOR COLLEGE
INFORMATION

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FOREWORD

The "unit cost" of instruction is a common index in the analysis of community junior colleges. Systematic examination of costs is a meaningful tool for the evaluation of programs and organizational components. Application of cost finding principles to higher education is becoming clearer through the efforts of a cadre of theoreticians, technicians and general practitioners. The contribution of this paper is the review of problems and pitfalls encountered in these unit costing efforts. Concerns about cost data compatibility and comparability are increased by the many independent and isolated studies currently afield. Sophistication characterizes the broad and general work of NCHEMS-WICHE. Comprehensive manuals are appearing in state-wide community college systems. Limited and singular efforts are evident in individual institutions. Most have the intended goal of linking financial analysis with planning and management.

It now appears that unit cost studies may become an integral part of the funding process for community junior colleges. Cost finding can assist in determining appropriate funding levels for a college, a statewide system of colleges, or of functions within a college. The merger of cost studies with resource requests serves to translate a sound basis for justifying financial needs to the legislature, local boards

and other supporting publics. This potential should excite interest in the standards, terminology, and effective use of cost information. Hopefully the same stimuli will result in more objective study of outputs and qualitative assessments in higher education. Unit costing is only one factor but a fundamental component for accountability in higher education. Leadership must be given in directing the eventual outcome of greater fiscal exposure to assure proper interpretation of the complex process of education.

The report of Dr. Howard D. Sims which follows was the result of an in-service grant from the Center for State and Regional Leadership operated jointly by The Florida State University and The University of Florida. The FSU/UF Center is financed in part by a grant from the W. K. Kellogg Foundation and has as its primary objective the improvement of state agencies directly or indirectly responsible for the development of community junior colleges. State agency officials or their designee concerned with study of an issue or problem related to community junior college education within their state which has potential applicability for other states throughout the nation are eligible for and encouraged to apply for the in-service grant program.

We extend deep appreciation to Dr. James L. Wattenbarger, Director of the Institute of Higher Education, The University of Florida, and the UF/FSU Center for his cooperation in this study and in reviewing the report manuscript.

Louis W. Bender
Professor of Higher Education

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Section I

INTRODUCTION

Higher Education is being questioned regarding its financial design. What fiscal support level is essential to quality educational services in each type of education institution? Legislators, state governing boards, and college administrators annually seek agreement and usually reach compromise on this issue. Educational requests are not being fully appropriated as most funding statutes are permissive up to a maximum rather than a mandate for either a minimum or scheduled amount based on an agreed to equation.

The tendency is for administrators to expound on financial crises; the legislators to weigh requests of the multitude of constituents; and for state boards to develop formulae and validating rationale. The question is reoccurring and should be faced in a systematic manner. The amount of support appropriated will continue to be a negotiable item until a funding process is adopted which will:

(a) Identify objective educational products and services for which an assured resource is available.

(b) Key to a measurable level of productivity with criteria for quality education.

(c) Provide a method for quantitative adjustments subject to public demands and economic feasibility.

(d) Allow a flexibility for individual and institutional selection in curricular offerings and emphasis in services.

UNIT COSTING : Definition

"Unit costing is the process of identifying the cost of producing a product or performing a service with costs assigned in terms of units of product or service produced." [1]

Unit cost studies have come into being as a method of justification in state level agencies' requests for support from public funds. Cost studies' advantages are also recognized in management of limited resources. A system of uniform procedure can provide for the exchange of compatible cost information between community junior colleges. Unit cost studies may also prove useful in achieving equity among curricula having differential costs. The system for the analysis of operating expenditures should be designed to show the cost of providing instruction by individual courses and by clusters of courses.

A state-wide effort in unit costing should encompass two major principles.

I. Unit costing is a vehicle for validation in state level funding requests and ultimately may become the base or indices of the funding process.

II. Unit costing is a managerial tool at the college level with its ultimate effectiveness realized as an integral part of the budget planning process.

From these two principles, the major objectives for a state-wide unit cost study are apparent.

UNIT COSTING : Objectives

State-Level

1. To provide cost data to demonstrate adequate funding levels for public junior colleges.

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[1] Stumph, Wayne, A Cost Finding Primer for Post Secondary Schools, Unpublished Monograph, Belleville, Illinois, February, 1972.

2. To provide differential costing information of various programs for curricula planning purposes and to establish various support levels for junior college education.

3. To provide cost data which can be used as a relevant factor in the decision-making process:

   a. to formulate requests for appropriations from the General Assembly;

   b. to support statements of need for specific state and/or federal funding for vocational/occupational education;

   c. to allow review of costs related to proposals for new programs; and

   d. to establish priorities in distribution of available funds.

Local Community College Level

1. To arrive at acceptable definitions for cost centers, products, services and funding formulae.

2. To arrive at a uniform method of data gathering.

3. To provide a consistent definition for allocating direct and indirect instructional costs.

4. To identify the management applications, uses, purposes, and processes of unit costing.

5. To relate cost study data to structure, financial planning, and intra-institutional analyses.

6. To provide an information base for financial support of curricula and program decisions within the community college:

   a. to assess the direct and indirect cost of offering a section, a course, and homogenous clusters of courses in order to provide a tool to aid in long- and short-range budget and curriculum planning;

   b. to assess the cost per credit hour in class sections, courses, disciplines, and programs as an aid and fiscal input to feasibility studies for levels of operations and pricing plans (tuition, state-aid, and tax levels);

c. to develop comparable unit cost data as input for economy and efficiency decisions between departments, divisions, campuses and among public junior colleges.

d. to demonstrate minimum support requirements as level of operations cost information.

THE MASTER PLAN

Master planning is the determination of necessary and logical steps to achieve a project or course of action. A step-by-step outline provides an essential communications link for all parties involved. This schematic may be in the form of committee assignments, project proposals, or a guideline manual showing procedural activities. The master plan should specify the desires of chief administrators in a clearly descriptive manner such that specialists can execute the detail in an orderly fashion. The master plan creates direction in a complex process where chaos can easily result.

The master plan for a unit cost study will be the road-map, the schedule, and dictionary for the less articulate. Starting with a clear statement of purposes and objectives, the master plan should lead to a point in time when a practical utilization of data is a reality. The actual and intended use of the cost information should be stated clearly by all parties at the outset. The state office should know what its needs are and just how the aggregation of numerous facts will affect its mission. Adequate communication of these intents will bring surprisingly constructive suggestions from the designers and field development personnel.

Master Plan Tasks

The following items are design tasks essential to a unit cost study for community junior colleges. They are the subject matter of the remaining sections of this report.

1. Develop a statement of purposes and objectives.

2. Determine the type and timing of cost data required by the state office. Units of measurement, data definitions, time period, and the scope of study must be stated to insure uniform procedures in carrying out the study.

3. Develop a plan for cost analysis with suggested worksheets and various reporting forms. Collection, tabulation, aggregation of data and final reports key from this task.

4. Develop a cost assignment report with narrative and definitions for implementation and operation use. The cost study report should be in consonance with the accounting system, budget formats, annual audits and financial planning documents.

5. Determine the willingness to standardize and extent of necessary standardization in cost classifications to proceed with exchange of valid cost study information.

6. Develop a faculty assignment report with narrative and definitions sufficient for implementation and operational use. This faculty effort approach is a supplement to direct cost assignments. This report should include direct and indirect instructional assignments, departmental research, community service work, and counseling efforts.

Two areas of concern mentioned in Tasks 2 and 5 are program output indicators and information exchange procedures. Cost-benefit analysis can be only as effective as the ability to identify outputs with measureable units. Costing must be performed using the same set of procedures if the information exchange is to have validity.

In the initial effort at unit costing, the junior colleges will find it more feasible to attempt a direct cost study and then branch out into the indirect costs, such as overhead items, in subsequent studies. The direct costs should be defined uniformly on a statewide basis, but will generally consist of salaries, supplies and

other expenses that can be directly assigned to a single course. Direct cost studies should be approached at the course level of cost assignments with aggregations being made by discipline area, such as the several courses in biology, and by organizational structure.

There are a number of other factors to be considered in addition to cost analysis. What is the intrinsic value of the program? Is the program appropriate to the institution? How important is the program for the public service function of the institution? Does the program serve the needs of many students in a way that other local or regional institutions do not serve? Does the program now exist in a developed and quality manner? To what degree does the program use only supporting services and disciplines which must be maintained with or without the program? Is adequate space provided for the program? Is cost-plus rationale a defensible approach amid the competition for public support?

The national system and pattern of education has been built upon intrinsic values that should not be swept aside in one stroke of financial rationalization. Education has generally been viewed by economists as an investment in the future for individuals, communities, states, and the nation. We must remember that cost analysis gives quantitative answers to highly complex problems. Only when cost analysis is combined with the judgment of the educational planner will a rational selection of alternatives be produced. In addition to the analysis of the previous year, the unit cost data should enable the administration to better plan for future program development.

The Master Plan Tasks identify the major tasks in a cost study.

These have been stated in general but objective terms. The following sections will expand the background of each task. Applicable pitfalls and recommendations are delineated at the end of each section.

Section II

IDENTIFYING UNITS OF MEASUREMENT

Identifying units of measurement involves broader consideration than the data definitions discussed in Section IV. Units of measurement become the language used to communicate cost information. Units of measurement have discrete meanings but have such universal usage that their definitions are commonly understood. A common unit of measurement of such broad usage is the student credit hour. This standard has traditional acceptance as an interfacing of time and academic exposure. The three-credit-hour course is the basic building block of all higher education. Variations on the credit hour theme are sufficiently common that a data gathering instrument may successfully request the courses with a certain credit hour value without further definition.

There are a number of basic cost study decision points. The product or process analyzed must be identified. The period of the study must be set. Sources of data must be established. The method of putting the data together must be determined. The types of audience to receive reports should be anticipated. The direction and ultimately the success of the cost study is affected by decisions made in this developmental phase.

Determination of units of measurement is certainly a basic decision point. One criterion is that agreed upon units of measurement be included in the normal data base of participating colleges. It would be nonsensical for a state-wide cost study to call for contact hour information if all other state reports were keyed to credit hour data.

Perhaps the most common pitfall is to be unsure of the intended use of the cost data. This doubt can cause the first generation cost finder to gather much insignificant data. To be certain of the ultimate utility of the information gives important directions to the cost study. It also channels the efforts and resources to get there.

Units of measurement are "output oriented" in most cost studies. This is demonstrated by the following list of common units of measure:

Student Credit Hour

Student Class Hour

Student Clock Hour

Head Count Students

Full-Time Equivalent Students

Student Completions (courses or degrees)

Not all costs should be included in the same manner in all cost studies. In education the cost study is aimed at the determination of cost of instructional products. There are other services and products in community college education that may not relate either directly or indirectly to the instructional activity.

A major step is to identify the product(s), process(es), or service(s) which are to be the basic unit(s) to be cost measured. Some possibilities are:

A. Products

1. The student credit hour--enrolled or earned.
2. The full-time-equivalent student (F.T.E.) (usually 24 to 30 student credit hours).
3. The student enrolled in a course, program or school.
4. Student contact hours.

5. The student who has completed a set of curricular requirements.

6. The class section or equivalent full class section.

7. The class or equivalent full class (a group of sections).

8. The discipline area (French, geology).

9. The department (foreign languages, biological science).

10. The faculty member or full-time-equivalent faculty member.

11. The functional area.

B. Processes

1. Lecture session

2. Laboratory instruction

3. Lecture-laboratory combinations

4. Seminar

5. Auto tutorial

6. On-the-job training

7. Correspondence

8. Research, student

C. Services

1. Counseling

2. Research; organized or institutional

3. Cultural arts

4. Remediation

5. Athletics, student-sponsored organizations

6. Community services, extension courses
7. Public relations
8. Audio/visual services
9. Administrative data processing
10. Food services

Credit hour data.

A basic product unit for most cost analyses should be the semester college credit hour. Various aggregations such as F.T.E., full-time student, degree programs, loan studies, course values and equivalencies, may be derived from the basic credit hour data. The product unit may be contact hours if state funding is on the basis of contact hours. Such systems are used to and capable of computations based on contact hours. Generally speaking, the contact hour is a component of the credit hour or can be equated to a credit-hour equivalency. Credit hour data will have more universal application and transforms more efficiently in degree program cost studies.

The semester credit hour (or its equivalent) is the commonly identified product among all sub-functions of instruction: class levels, baccalaureate, occupational, general studies, and adult and continuing education. The most useful objective of a college cost study is the identification of the cost of instruction in terms of a semester credit hour. Provisions must then be made to allocate credit hour data to cost centers. Therefore, program or course divisions must be standardized to reflect either a credit hour or a time equivalency factor. The underlying principle of uniform accounts will

provide the necessary base for developing cost comparisons from one fiscal period to the next. Once a course is identified for a specific purpose, the codification to identify that course should not be altered from one center to the next. The course itself becomes the common element that may be shifted from one program to another; from one functional area to another; or from one department to another. Object expenditures then may be identifiable both directly and indirectly to the smallest common element, the individual course.

Faculty record data.

For each faculty member including part-time staff and administrators, it is essential that the following data be provided from payroll or similar official records. There should be uniformity and standardization of department and division names among the various records.

(a) Name of department, division or other administrative unit in which the faculty member is budgeted.

(b) Identification of courses and sections taught.

(c) Total salary for the fiscal year.

For related institutional research the following faculty data is desirable and can be a part of the unit cost analysis. However, simplicity in early studies will have many values and is strongly recommended.

(a) Academic classification and/or administrative title.

(b) F.T.E. faculty member (for a full year including summer school) is defined as the total number of course hours assigned divided by 30.

(c) The following items may be useful for detailed analyses: sex; marital status; highest degree held; major and minors in field being taught; experience in fields being taught; full-time equivalent of the contract appointment, (i.e., 1.00=full-time, .75 = three-quarter-time, .50= half-time, and .25 = quarter-time); whether part-time staff members are on full-time salary schedule position; and whether they receive any payments above salary schedule position.

Pitfalls and Recommendations.

1. Strive for uniformity in procedures.

2. Avoid complex formulae and data collection that may prove irrelevant as a unit of measurement.

3. Seek common ground in units of measure. Avoid mixing of standards such as contact hours vs. credit hours.

4. Proceed in the simplest possible manner such as an instructional cost study only, during the pilot year.

5. Do not involve a large number of people until the purposes and objectives have been clearly stated.

6. Clearly state the intended use of the data collected.

Section III

CLASSIFICATION OF COST CENTERS

Major considerations in unit costings are the developing of cost centers and consistent assignment of cost by unit of product and service. Cost centers are most frequently organizational units (departments or disciplines) grouped together in functional operations, such as instruction and student personnel services. The cost center may also be broken down into the smallest common element, such as individual course.

Unit cost studies may be developed as a pure system of either:

(a) An accounting approach to quantify and assign costs to pre-determined cost centers which are usually sectors in the accounting system; this approach is related to cost accounting.

(b) A level-of-effort approach which is an attempt to qualify in a broad sense the faculty effort within cost centers by a pre-determined set of functions such as instruction, research, counseling, and administration.

(c) A cost finding approach, advocated by WICHE-NCHEMS, which draws from both (a) and (b) to cost a variety of activities having a unique objective.

The accounting approach, by its tangible nature, tends to be the easier method to achieve on a compatible basis on such a broad scale as a state-wide cost study. A combination of the two approaches should be considered at the institutional level for participatory interest and responsibility among the total staff. Work on the combi-

nation approach seems to be a first step in the inductive evolution of a sophisticated method toward really measuring the output of higher education. The relationship between costs and productivity within a cost center is the design essential to demonstrating requirements and effective use of resources. The indices between products and services to assignable costs is the design key.

Unit costing is dependent upon a standardization of business operations and the acceptance of uniform structures both by the administration and academic personnel of any community college. Vacillation of methods, account groupings, functional content, and cost centers can only lead to a state of flux in comparative cost analyses.

Uniform Coding.

A uniform coding structure requires a standardization of account classifications. Such uniformity in turn provides a consistent identification of accounts relating either to financial transactions or involved in financial reporting. The concern for community junior college education on a state and regional basis has resulted in efforts to develop standard procedures for information gathering and exchange. The objective measures of efficiency among public junior colleges are reliant upon meaningful and comparable data coming from a common reporting structure. This common structure is a uniform coding system based upon a standard chart of accounts.

Community junior colleges in many states have a real jump on unit cost studies. Those states (Illinois, Michigan, Florida, Wash-

ington, and others) having a uniform accounting manual can accomplish the majority of the cost study as a by-product of the accounting system. Fiscal data is assigned to and accounted for in existing cost centers. Some definitive work remains in acceptance of common cost centers. The HEGIS taxonomy of disciplines has considerable promise in the solution of this problem. If HEGIS is adopted in state-wide costing work the community junior college cost data may be compatible with similar data in four-year colleges and universities.

Course and section coding could be modified to mean activities for those institutions developing program budgeting. These modification suggestions do not violate the concepts of fund accounting, and they exploit the advantages of new machine accounting techniques.

The chart of accounts is an organized list of accounts used in the accounting system. The list by no means limits the local college but rather establishes standardization at summary levels. This allows freedom for the local college to maintain accounts in as great a detail as the administration desires and to structure accounts to fit the individual college organization. The ability to aggregate and compare at the state level is not hampered, and sufficient account detail for credibility is insured. A chart of accounts should be well designed to meet the needs and requirements of all junior colleges regardless of size or degree of automation.

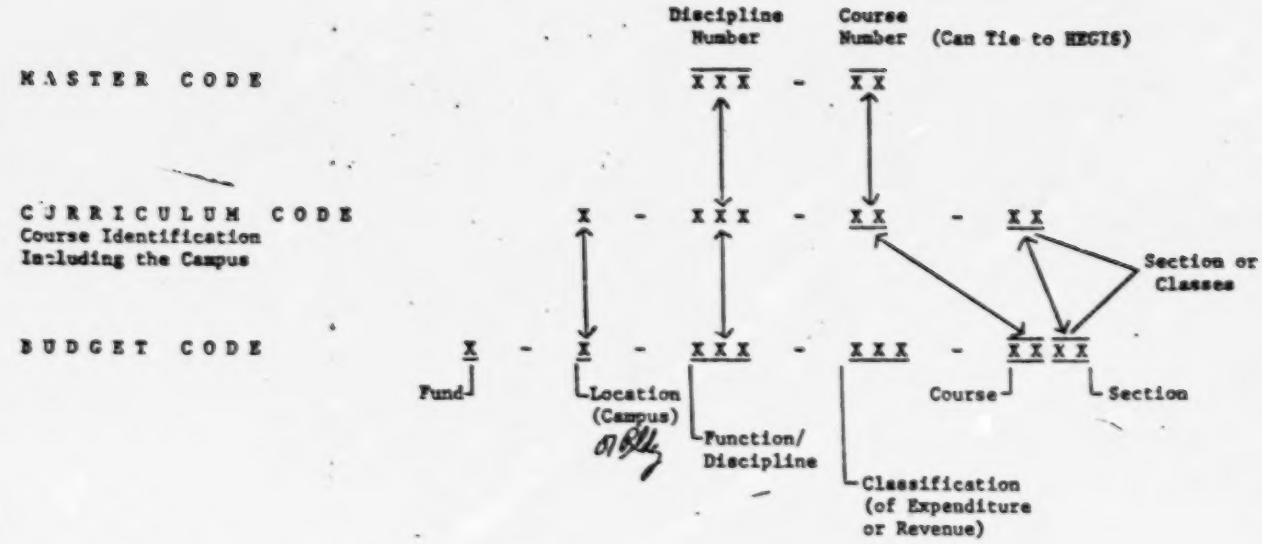
The uniqueness of an institution can be maintained in certain categories such as departmental or divisional organization. The addition of digits is an extension of the capabilities of the fund

accounting system. Such an addition satisfies traditional accounting needs while broadening the management aspects of financial reporting. Thus, with minor modifications, the uniform coding system has an adequate classification structure to accommodate recent emphasis on the management techniques of program budgeting.

Exhibit A demonstrates the merging of an academic classification structure and the accounting codification system. The cross-referencing aspect of this merger is invaluable in computations in a cost study. The left-to-right progression in both systems goes from the general to the specific. However, the right-to-left progression is a method of aggregation to higher levels or to more inclusive structures. The latter concept is the inductive approach to gathering costs.

Exhibit B is a sample classification of accounts familiar to business administrators throughout all educational levels. The sample demonstrates the capability of identifying cost centers at any level of aggregation. The variable identifier is in the structural area of course and section of the budget code. The name variable identifier indicates the multi-use of this coding area. It holds a variety of identifying abilities for the course and section but is also effective in inventory, grants, special projects, and other budget considerations. The variable identifier is the most specialized area of the code system and may remain unique to the single institution. The major impact on cost studies is the ability to assign cost, through the progressively greater account breakdown, to any level of detail desired and practical.

EXHIBIT A -INTEGRATION OF A UNIFORM CODING SYSTEM



METROPOLITAN JUNIOR COLLEGE DISTRICT

Chart of Accounts
Expenditures

FUND
LOCATION
MAJOR FUNCTION AND DEPARTMENT
CLASSIFICATION OF EXPENDITURES
X X XXX XXX

FUND
1 - General Fund
2 - Restrictive Fund
3 - Loan Fund
4 - Scholarship Fund
5 - Endowment Fund
6 - Unexpended Plant Fund
7 - Bond Retirement Fund
8 - Invested in Plant Fund

LOCATION
1 - District
2 - Pass Valley Community College
3 - Langston Community College
4 - Maple Woods Community College

MAJOR FUNCTION AND DEPARTMENT

200 Administration

100 - General Administration
101 - Board of Trustees
102 - Chancellor or President's Office
103 - Office of the Vice Chancellor
104 - Office of Assist Chancellor
105 - Occupational Prog and Sch Serv
106 - Office of Business Services
110 - Office of Admin Services
120 - Office of Computer Services
121 - Office of Facilities Develop

300 Instruction

300 - General Instruction
301 - Office V Pres Inst
302 - Office Dean of Instruction
303 - Office Dean of Voca Tec Educ
304 - Office Assistant Dean Ext Day
305 - Office of Community Services
310 - Automechanics Department
311 - Allied Health Department
312 - Architecture Department
313 - Art Department
314 - Automotive Technology Depart
315 - Biology Department
316 - Business Department
317 - Chemistry Department
318 - Data Processing Department
319 - Dental Assistant Department
320 - Developmental Communications
321 - Drafting Department
322 - Dressmaker Department
323 - Electronics Department
324 - Engineering Department
325 - English Department
326 - Fire Science Department
327 - Food Service Department
328 - Foreign Language Department
329 - Geology Geography Depart
330 - Elec, Fellt Sch, and Secl
331 - Home Economics Department
332 - Hotel and Restaurant Management
333 - Law Enforcement & Criminology
334 - Machine Technology Department
335 - Mathematics Department
336 - Mid-Management Department
337 - Music Department
338 - Nursing Department
339 - Philosophy Department
340 - Physical Education Department
341 - Physics Department
342 - Psychology Department
343 - Reading Lab
344 - Secretarial Department
345 - Social Science Department
346 - Speech Department
347 - Zoology Department
348 - Cooperative Stenographic
349 - Modern Center
350 - Learning Center
351 - Cosmetology
352 - Secretarial Science
353 - Traffic Engineer

400 Instructional Resources

400 - General Inst. Resources
401 - Library
402 - Audio Visual
403 - Instructional Media

600 Student Personnel Services

600 - General Student Personnel Ser
601 - Dean Student Personnel Ser

700 Plant Operation and Maintenance

700 - General Plant Oper and Maint

800 Student Activities

800 - General Student Activities
801 - Alpha Phi Omega
802 - Phi Theta Kappa
803 - Engineering Club
804 - Delta Psi Omega
805 - Chemistry
806 - Art
807 - Music
808 - Photography
809 - Debate
810 - French
811 - Spanish
812 - Amateur Radio
813 - Echo
814 - Yearbook
815 - Basketball
816 - Technical Drafting
817 - Cheerleading
818 - Community Theater
819 - Political Science
820 - Social Science
821 - Maple Woods News
822 - Judo Club
823 - Student Union
824 - Lambda Alpha Epsilon
825 - Model Aeronautics Club
826 - Architecture Club
827 - Tennis Club
828 - Track Team
829 - Chess Club
830 - Table Tennis
831 - Handlebration
832 - Golf Club
833 - Ecology Club
834 - International Club
835 - Campus Crusade for Christ

900 Auxiliary Services

900 - General Auxiliary Services
901 - Purchases for Resale
902 - Additions to Purchases
903 - Operating Expenses

950 Student Aid

950 - General Student Aid
951 - Administration
952 - City of Cannon City W/S
953 - Council on Alcoholism-G/S
954 - General Hospital W/S
955 - YMCA Southtown W/S
956 - K.C. Library W/S
957 - YWCA W/S
958 - YWCA W/S
959 - Law Enforcement - Grant
960 - Law Enforcement - Loan
961 - Aber Wapo Grant
962 - Aber Upper Grant Nat Prog
963 - St. Vincent's Day Care Center
964 - Salvation Army W/S
965 - YMCA Licensed Fosse Branch W/S
966 - Rehabilitation Institute W/S
967 - Heart Association W/S
968 - Riverside Police Depart-G/S
969 - Social Security Admin W/S
970 - Holy Name W/S
971 - Nursing Program - Loan

CLASSIFICATION OF EXPENDITURES

100 Salaries

101 - Salaries Full Time
102 - Salaries Part Time
103 - Salaries Summer School
104 - Salaries Substitutes
105 - Salaries Maintenance
106 - Salaries Custodians
107 - Salaries Security
108 - Salaries Student Help
109 - Salaries Stu Help W/S on Campus
110 - Salaries Stu Help W/S off Campus
113 - Salaries Food Service
114 - Salaries Contingency
115 - Salaries Other

200 Expenses

200 - Supplies and Expenses
201 - Copying Expenses Control
202 - Rental Real Estate
212 - Postage
213 - Auto Expenses
214 - Rental Parking
215 - Water and Sewage
216 - Electricity
217 - Telephone
218 - Rent 401
219 - Gas
220 - Trash Hauling
221 - Employee Ins Workers' Compens
222 - Employee Bene State Retire
223 - Employee Bene FICA
229 - Portalcicle
230 - Printing
231 - Advertising
232 - Books Non-Library
233 - Subscriptions
234 - Moving Expenses
235 - Travel and Conventions
236 - Dues and Memberships
237 - Social Duties
238 - Community Relations
239 - Election Expense
240 - Bond Sale Expense
241 - Graduation and Convocation
242 - Accreditation
243 - Repair of Equipment
244 - Mileage - In District
245 - Freight in and Freight out
250 - Cont Serv - Legal
251 - Cont Serv - Architects General
252 - Cont Ser - Architects Normal
253 - Cont Serv - Architects Intro
254 - Cont Serv - Appraisal
255 - Cont Serv - Demolition
256 - Cont Serv - Realtors
257 - Cont Serv - Consultant ASB
258 - Cont Serv - Consultant Other
259 - Cont Serv - Rent of Equip
260 - Cont Serv - Bonding
261 - Cont Serv - Other
262 - Sports
265 - Serv Contracts on Equip
266 - Upkeep of Grounds
267 - Property Insurance
268 - Liability Insurance
269 - Fidelity Bond Premiums
271 - Bond Interest Expense
272 - Constr to Federal Prog
277 - Refu to the Const Fund
280 - Equip Depreciation Acad Serv
281 - Equip Replacement
290 - Remodeling

300 Capital Outlay

301 - Furniture & Equipment
312 - Capital Improvements
313 - Land
314 - Land Improvements
315 - Building Educ Control
316 - Building Admin
317 - Building Student Union
318 - Building Other
319 - Building Interio
330 - Books Library Only

400 Purchases for Resale

400 - General Purchases for Resale
411 - Textbooks - New for Resale
412 - Textbooks - Used for Resale
413 - Trade Books for Resale
414 - Art and Engrg Supls for Resale
415 - Soft Goods for Resale
416 - Stationary Supplies for Resale
417 - Paper Supplies for Resale
418 - Miscellaneous for Resale
419 - Discounts on Sales
[illegible] & Allowances on Sales

500 Payments to Students

501 - Grants
502 - Scholarships

EXHIBIT B - Sample Classification of Accounts

Pitfalls and Recommendations.

1. Attempt to align with existing organizational units and budget centers.

2. Be aware of national efforts in establishing instructional divisions among subject fields.

3. Integrate and merge classification systems where possible. The academic codes for courses, disciplines and functions should be evident in and supported by the accounting system of codification.

4. A cost center should clearly be identifiable and accepted by both the academic and administrative designers.

Section IV

DATA DEFINITIONS

The data to be used in cost studies requires both conceptual and technical definitions. This section is not a complete taxonomy or cost study glossary but a guide to common practices which may aid the initiation of a study. Ultimately a cost study manual should strive to achieve optimum uniformity of classification and consistency of definitions. Examples of needed conceptual definitions are direct and indirect costs. The use of direct costs versus indirect costs should be resolved early in the planning of a cost study.

Direct costs are costs that have been incurred directly in the production process and can be assigned both to the product or service and to the organizational unit. Direct costs are scheduled or budgeted costs in such categories as salaries, supplies and expenses, travel, and educational equipment.

Indirect costs are costs incurred in support areas and otherwise only indirectly related to the product or process. Indirect costs are usually distributed to products or processes on a proration or percentage basis. The complexities of the process suggest that indirect costs should be compiled separately from direct costs for analysis and allocations. The format of cost reports should display both direct costs and indirect costs.

Another conceptual definition is that of cost accounting versus cost finding.

Cost accounting applies accounting principles in determination of unit costs of production. Cost accounting has the ability to provide data that can be used to analyze expenditures as a by-product of the regular accounting process.

Cost accounting is a method in which production costs are accumulated and distributed to cost centers on an equitable basis. Cost accounting techniques may also be applied to the non-instructional functions of a college to control costs and promote efficiency. The accounting system provides data on historical costs and may be used to project future costs.

The following functions are basic to any type of cost accounting system: (1) classifying of costs; (2) recording of costs; (3) allocating cost to product or activity; and (4) summarizing and reporting of costs to management. The development of cost accounting systems, particularly the techniques of standard costing, is regarded by many as the most important contribution of the accounting profession to industrial management in the last fifty years. Standard costing in education exists in the processing activities of budget development, budget administration and unit cost studies.

Cost finding is defined as a cost system operated separately from the general accounting system.

The cost finding process requires that the cost finders analyze accounting data as well as other institutional data to allocate costs to activities. A cost finding system may involve only the use of cost forms and records. All analysis and interdepartmental transfers

made in this type unit cost study are external to the general ledger accounting system. Such a system is also referred to as a statistical cost system. This cost finding system characterizes the work of NCHEMS-WICHE.

The cost finding system (or statistical cost system) does not have to be completely separate from the general books of account. Often, a large part of the expense of maintaining cost accounting records that tie in with the general ledger is incurred in handling an inconsequential portion of the production costs. In such a case, a compromise can sometimes be worked out which ties in only the important costs or applicable costs by definition; the minor elements of cost are collected independently. Of course, a serious amount of control is lost when costs are not tied in with the books of account. This weakness can be overcome, to some extent, by having competent personnel operate key areas and use of a cost finding manual.

Cost center is defined as the smallest unit or segment of operations for which costs are collected. Administrative divisions of a college do not always suffice for the determination of costs. Hence organizational units consisting of natural grouping of like activities carried on at different centers are set up for cost purposes.

Instructional and service departments are usually natural locations for the allocation and charging of direct supplies, labor and overhead. As such, they are usually considered to be cost centers. Each department may, in turn, contain subsidiary cost

centers such as disciplines. In program budgeting a cost center is all activities contributing to a predetermined objective.

Account codes and symbols are classification shorthand for accounts. Symbols, and their development into symbol systems called codes, aid in classifying and locating the many accounts present in most modern community colleges. Symbols can be used to mark original transaction documents, such as invoices, vouchers, and shipping orders, for quicker filing, classification, and posting to the books of account. Account codes are also used to facilitate the mechanical sorting and tabulating of accounting information.

Two types of codes exist--numerical and mnemonic code systems.

Numerical codes. A simple numerical, or sequence code, assigns successive numbers to each account used by the firm, after the accounts have been arranged in a logical order (such as asset accounts followed by liability and net worth accounts as they appear on the balance sheet, then the income and expense accounts in the order they appear on the income statement). Although the sequence code is useful for very small colleges with a limited number of non-changing accounts, it does not permit a subdivision of accounts by groups. Example: College X, which uses a sequence coding system for its accounts, might show the following partial listing in its chart of accounts:

1. Cash
2. Accounts receivable
3. Inventory
4. Prepaid insurance

5. Furniture and fixtures

6. Buildings

7. Land

8. Accounts payable

To overcome some of the disadvantages of the sequence code, block or group codes of a decimal system may be used. Under these systems, groups of related accounts bear related numbers. For example, all current assets might be numbered from 1 to 19, non-current assets from 20 to 29, etc. A common prefix might be used for related accounts; for example, all current asset accounts would bear the prefix 2, followed by the number of the specific account. These numerical systems also permit the breakdown of a general account title into its components. Example: College Y uses a numerical prefix to designate the group to which the account belongs. This prefix is followed by a two-digit number, the first digit representing the general account classification, and the second digit the specific account. For example, the prefix 26 may be used for the cost of instructional salaries. Thus, instructional salaries will bear numbers 26-10 to 26-19, the 1 designating salaries, the last digit designating the type of salaries, e.g., 1 for full-time, 2 for part-time, etc. A three- or four-digit code permits still finer breakdowns of such accounts.

Mnemonic codes. Mnemonic codes use letters or other devices to aid in classifying the various accounts; these serve to assist the memory in finding the symbol for any account. For example, the letter

"A" might be used to designate asset accounts, "L" liability accounts, etc. L105 would thus designate a specific liability account, such as salaries payable--custodial.

Fund Accounting. The National Committee on Governmental Accounting (Municipal Accounting and Auditing) defines the term "fund" as follows:

> A sum of money or other resources segregated for the purpose of carrying on specific activities or attaining certain objectives in accordance with special regulations, restrictions, or limitations and constituting an independent fiscal and accounting entity.

Funds are established in accordance with the requirements of constitutions, statutes, and charters, or pursuant to action by the legislative body or the chief executive.

The National Committee on Standard Reports for Institutions of Higher Education (Financial Reports for Colleges and Universities) recommends the use of the following groups of funds by a college or university:

1. Current funds
2. Loan funds
3. Endowment funds
4. Annuity funds
5. Plant funds
6. Agency funds

The above fund categories may constitute groups of funds rather than just a single fund. There may be several individual loan "funds" in existence at any time. "Plant fund" is the collective name for three types of funds; namely, (1) funds used to show net investment in plant; (2) funds which show the assets available to replace, add to,

or otherwise improve the plant; and (3) funds which reflect the assets available to retire indebtedness incurred in connection with the acquisition of the plant.

Additional definitions to be considered are:

. Discipline

. Course

. Function

. Depreciation

. Released time

. Overload assignments

. Laboratory instruction

This is by no means an exhaustive list but should be considered in committee. Time should be allowed in the committee effort for a thorough discussion of each definition. Disagreements recognized at this stage will positively reduce misunderstandings and misinterpretations during the course of the study.

Significant references for committees or individuals involved in data definitions are listed below.

1. College and University Business Administration. American Council on Education, Washington, D.C., 1968. A summary of chapters 19 and 20 appears as Appendix A in the preliminary draft of Cost Finding Principles and Procedures, NCHEMS/WICHE.

2. Encyclopedic Dictionary of System and Procedures. Prentice-Hall, Englewood Cliffs, New Jersey, 1966. An excellent reference prepared by the editorial staff with primary emphasis on business and industrial accounting.

3. A Taxonomy of Instructional Programs in Higher Education. U.S. Office of Education, HEW, report No. OE-50064. Edited by R. A. Huff and M. O. Chandler, 1970.

Pitfalls and Recommendations.

1. Data definitions must be consistent with usage in other records, reports and communications.

2. Definitions should be simple but extensive enough not to be misleading or misinterpreted.

3. Technical and legalistic terminology should be avoided. A variety of personnel backgrounds will cause frustration and inconsistencies in results if detailed technical definitions are used.

4. A short glossary limited to relative terms is recommended.

Section V

DATA COLLECTION

The manner in which cost study information is gathered, tabulated, and reported will have an influential role in the acceptance and value of the data. Unit costing will have different levels of meaning to each community college, depending upon that institution's commitment to the cost study. The validity and reliability of data are dependent upon the collection process. The simplicity of the data form, the personnel inputing the data, the compiler or reports, are all affecting factors.

The major functions of a unit cost study are internal institutional analysis; external institutional comparison; and as a decision-making tool coupled to budget-making and the funding process. The collection of data should be keyed to each of these functions. The collection process should be related to existing data, reporting times, and records of the institution. When possible, the financial accounting system should be the base for fiscal information. The input of the cost study cannot alter the accounting system. The designer of the cost study should be well informed as to the form and substance of the accounting records. Payroll and personnel information should be considered in the same manner. Course schedules and faculty assignment records should compliment the cost study needs rather than creating a barrier to data gathering. Minor alterations in the cost study collection process and forms can insure the ease of collecting information from existing data and in many cases can become a print-out routine from data processing storage.

External institutional comparisons seem inevitable. Public agency interest and legislative need for quantitative representations about higher education cause an imperative that cost study information be made the most accurate possible. The issue may be alleviated if considerations are given to compatibility of information rather than comparability. The compatibility concept is particularly useful during initial years of the cost study when longitudinal studies are not available to highlight errors and omissions in the cost study procedure.

The factors involved in unit cost study data collection are the design of forms, assignment of period of analysis, distribution of forms and guidelines, collection and tabulation of data, and the translation of computations into report form formats. The guidelines should contain the actual forms, instructions for filling out the forms, essential definitions, and a schedule for the receipt of data and reports.

The guidelines should contain positive statements such as those indicated below. These statements are samples and not an inclusive or necessarily cohesive listing.

1. Data will be collected for each fiscal year including the summer session and the subsequent fall, winter and spring terms.

2. Cost data will be broken down to course level for all direct cost.

3. Indirect costs will be all non-direct cost assignable to a discipline. Indirect cost can be prorated to the individual courses within a discipline on the basis of credit hours produced.

4. Indirect costs that are assignable to the department or division structure containing disciplines may be prorated back to the discipline on a credit-hour-produced basis.

5. Instructors salary should be allocated to the course on a ratio of course credit hours to total instructional assignment of that instructor.

6. When an overload rate exists the overload amount and the contract amount should be totaled as the instructional salary for an individual.

6a. (Note contrast to No. 6) The overload rate should be assigned to the course that is identified as the cause for overload to an individual.

7. An instructor's load should be allocated between departments on the basis of contact hours when the mix of credit and contact hours occurs for an individual.

8. Department chairman's pay, whether it be released time or overload pay, should be charged to the general instructional budget, in lieu of a specific general budget for each of the departments.

9. Summer school pay should be properly charged to the individual departments when the payroll information is turned in so that no interdepartmental transfer will be necessary.

10. In accumulating the number of credit hours by department by college, we have included courses in a consistent department so that departmental costs will be comparable. For example, Economics has been consistently allocated in both cost and credit hours to the History, Political Science, and Economics departments.

11. The credit hours used in our report are those at the state aid cutoff dates.

12. No expenditures for capital outlay are reflected in the individual department costs. They have been deducted prior to making the unit cost calculations.

13. All interdepartment transfers made in this unit cost study are external to the general ledger accounting system.

Data Collection Forms

Data collection forms should be given thorough review before implementation. These forms are the key to the consistency and ultimate validity of the data. Sample data collection forms and the associated instructions are presented here for their informational value only. These samples are under community college committee review in the State of Missouri presently. They are easily recognized as

being akin to the operational cost study documents in the Florida community colleges. Florida's Department of Education has a well-co-ordinated plan in which workforms (data collection) support the format of cost study reports.

The addition of the HEGIS No. to the Missouri forms is to test the adaptability to community colleges and to allow aggregation on a common index.

Also being tested is the compatibility concept. If HEGIS is adaptable, the data may be compatible with that of other institutions in different states and levels of education.

Missouri Community College : Unit Cost Study

WORKFORM A

FACULTY ASSIGNMENTS

Reporting Period

Name of Faculty Member

Contract Period (s)
From __/__/__ to __/__/__
From __/__/__ to __/__/__

Identification Number

Contract Salary for Period (s) _____
Overload Salary for Period (s) _____

College Department

Teaching Assignment

COURSE		a	b	c	d	e
Catalog. No.	Name	HEGIS No.	Credit Value Sem.Hrs. or Equiv.	No. of Sections	Enroll-ment	Stu Sem Hr. or [Equiv.]	Salary Allocation

NON-TEACHING ACTIVITIES

Total Salary: _____

Activities Compensated by Salary Additives:
Responsibility — Amount of Additives

Activities Not Compensated by Salary Additives:
Responsibility — Percentage of Workload — Salary Allocated

Missouri Community College - Unit Cost Study

Instructions for Completing
Workform A
FACULTY ASSIGNMENTS

Purpose of the Workform

This workform provides for the analysis of the assignments of each individual who engaged in direct instruction of students in courses offered by the College. Information is required for each and every individual who participated in the teaching of courses during the terms covered by the analysis.

External Consistency

Just as the fiscal data utilized in the analysis of operating costs must be consistent with the data reflected in the Annual Financial Report, it is imperative that the data reported on Workform A relative to the academic program of the institution be the same as those reported to the State Department of Education.

Definitions and Instructions

Identification Number - Use the number utilized by the college for payroll identification.

College Department - Enter the name and/or number of the organizational unit through which the faculty member is compensated. This should be the department of major assignment.

Reporting Period - Usually the three terms that end during the fiscal year, viz., Summer, Fall, Spring Semesters.

Contract Period(s) - Show the dates of the faculty contract period(s) which most nearly coincide(s) with the fiscal year being studied.

Salary for Period - Enter the gross salary, excluding only additives for functions other than instruction. Include the employer's portion for retirement (8%), social security (5.2%) and other fringe benefit packages such as insurance.

Column a - Enter the semester hour value approved for the course. Quarter hours are to be converted to semester hours by multiplying by 3/5 for a single course and 2/3 for an aggregate of several courses. For instruction for which credit value is not assigned, a semester hour equivalent is entered based on individual college's documented practice and state guidelines.

Column b - Enter the number of sections (meeting separately) to which the faculty member was assigned during the period.

Column c - Enter the number of individuals enrolled each mid-term or the date for state aid reporting. The number used here must be the same as that reported to the State for reimbursement.

Column d - For those courses for which a credit value is assigned this entry is calculated by multiplying the enrollment in the course by the semester hour credit value. In obtaining this total, the credit value of each course is to be weighted by the number of sections assigned.

Column e - The allocation of salary to the direct instruction of students is calculated by:

1. Excluding a percentage of the gross salary for the period equivalent to the percentage of the time assigned to non-teaching functions.

2. Dividing the remaining salary by the total number of semester hour and semester hour equivalent credit value of the courses assigned in each semester.

3. For each course, multiplying the dollar value obtained in 2 above by the credit value of the course times the number of sections for that semester.

4. Calculations in 2 and 3 above must be made on a semester basis.

Non-teaching Activities - Any assigned activities other than the direct instruction of students enrolled in courses are reported as non-teaching activities.

For non-teaching activities for which salary additives are provided, it is assumed that the additives cover the cost of the service performed. That dollar amount is shown on Workform A, and it is to be carried forward to other workforms in future studies in order to be charged at the appropriate level.

In the case of assigned non-teaching activities for which salary additives are not provided, the percentage of an individual's workload that is attributable to that activity should be shown, and a corresponding percentage of his gross salary should be charged to that activity. This may be released time for the non-teaching assignment such as department chairman.

Missouri Community College : Unit Cost Study

WORKFORM B

DIRECT INSTRUCTIONAL COST
BY COURSE

Course/Cluster		a	b	c	d	e	f	g
Cat. No. Name	HEGIS No.	Instructor	No. of Students	Stu Sem Hours of Credit	Teaching Salary Cost	Direct Costs: Supplies Travel Student Help Contr.Services	TOTAL DIRECT COSTS [d+e]	Direct Cost per Student Sem. Hrs. [f ÷ c]

Missouri Community College - Unit Cost Study

Instructions for Completing
Workform B
DIRECT INSTRUCTIONAL COST
BY COURSE

Purpose of the Workform

This workform is used to calculate the direct teaching salary costs on a student credit hour basis for each and every course given by the college during the reporting period, and for each of several clusters of courses.

Instructions

Course/Cluster - Information for individual courses is entered in such a manner that courses are grouped by subject field. Groups should be collected by the HEGIS course classification structure. Course entries are made in the same order to facilitate calculation of the cost by course clusters.

Columns a through d - For each course there is made an entry for each faculty member who was assigned one or more sections of the course during the reporting period. When all such entries have been made for each course, entries in columns b, c and d are to be summed. Similarly, when all the entries have been made for all of the courses in a given cluster, the entries in those columns are to be summed at the cluster level (HEGIS Discipline).

Column e - Entry for column e is calculated by applying the costs for supplies, travel, student help, and contracted services. These costs may also be determined by pro-ration on the basis of credit hours in the course compared to the credit hours produced in the discipline or department in which this type of cost is most easily recorded. (Example: A three hour Freshman English course is a part of the communications department which produces 360 credit hours. The English course is then allocated 1/120 of the departmental costs that cannot otherwise be assigned (such as supplies).

Column f - The sum of columns d and e make up the total direct costs for instruction of the course or discipline cluster.

Column g - Direct cost per student semester hour is determined by dividing column f by column c.

Section VI

REPORTING AND DATA UTILIZATION

Community Junior Colleges, whether publicly or privately controlled, are in the nature of public trusts. The resulting obligations for stewardship and accountability necessitate a system of standard cost studies and reports which will insure full disclosure of the results of the college operation and of their financial position. Information about public schools is public domain and should not be concealed or withheld if inquiries are received. However, it does the average citizen little good to receive the information that the cost per credit hour at X college was $39.48 for the preceding year. Going back to the earlier premise that cost finding has no intrinsic value, the data collected from cost study projects should, therefore, never be broadly reported but restricted to predetermined objectives.

The designers of any cost system have an obligation to control the use of the information collected. Theirs is also the very critical responsibility to be sure that the question is clearly understood before cost data is supplied in response to the question.

When the project is complete and the data is available, its use should be carefully restricted to the purposes for which it was constructed. Cost data should never be widely distributed without accompanying explanation and related information.

Even though community junior colleges are instrumentalities of government, their activities are different from state agencies, such as highway departments and welfare agencies. They require a system of cost studies and reports specifically adapted to the functions, funds, purposes, and objectives of junior college education. The cost analysis of public community colleges should be co-ordinated with the reporting system of the State Department and should correspond to similar studies in other community colleges. This recommendation presupposes the presence of competent accounting personnel and a system of bookkeeping adequate to record, classify, and summarize all financial transactions, and to produce reports of enrollments, faculty assignments, and credit hour productivity by course.

The cost study reports should summarize and be consistent with the information produced in the accounting and instructional records. The financial reporting system, through uniform coding, should allow aggregations to any level of activity and be comparable in a creditable manner with other institutions. Commonality of instructional divisions must be consistent within the institution or multi-campus organization. To further accomplish accurate reporting, these divisions must be agreed upon by the various institutions among which the comparisons will be made. The most useful index of instructional divisions is the HEGIS taxonomy of disciplines.

The purposes of a unit cost study in Community Junior Colleges are: (a) to provide a vehicle to measure funding requirements; (b) to evaluate and refine the basis for allocation of limited resources at both

the state and local levels of governance; (c) to improve internal management as an aid to local planning and evaluation of alternatives in resource allocation; and (d) to assess comparative costs and benefits attached to function, curriculum, program, discipline and course as an aid to state-wide planning.

The report format and substantive content should address these purposes. It may be an effective approach to create a single report (or series) for each of these purposes.

Pitfalls and Recommendations.

1. Clarity and simplicity should characterize the reports and summarization of findings.

2. Data should be presented in the context and for intended purposes for which it was collected.

3. Excessive detail in the final report detracts from the content and purposes of the study.

4. Variance of cost study data from routine financial documents cannot be allowed without supporting statements.

NOTE: The author has seen fit not to put in samples of report forms. It is suggested that the reader review the "A System for the Analysis of Operating Expenditures of Florida Community Colleges" for sample report formats and the coordination of reports and work forms.

Section VII

LEVEL OF EFFORT CONCEPTS

The feasibility of analytical models for academic planning has been proven. Valid instruments, technical definitions, a variety of approaches, and documented guidelines exist. The common units of measure are being integrated with outputs, processes, and services in analyzing the relative efficiencies of community college operation. Therefore, it can be accepted that the unit cost technic is a viable functioning process adapted to education. The next advance shall be in operational applications of cost study results such as the resource implications for various levels of effort.

Level of effort has to do with the dynamic balance among an institution's program. A community college is similar to a commercial enterprise in the sense that different operational intensities are possible. Level of effort deals with questions of scale such as load factors, enrollment capacities, space utilization, and student program preferences. The level of effort concept may be discussed in terms of input-output orientation or in terms of planning and decision-making factors.

Community junior colleges are not used to the term "level of operation". Most have been considered developing institutions and

have not struck the equilibrium of normal operations. Should enrollment trends plateau then terms such as course obsolescence, course trade-offs, consolidations, cost-plus, and core curricula would become familiar in seeking an appropriate operational level. Unit cost information has significance and usefulness within the academic decision-making structure. The ultimate value is realized when translations and aggregations of unit cost data provide the firm basis from which to control expenditures and for projections in financial planning. Simulations and forecasting should be a by-product of a financial reporting system and not an occasional special project.

It is a design essential that administrators indicate what data types, summarizations, and focus he would have the unit cost study take. Unit cost studies should not serve the financial or business interests of the institution to the exclusion of others. Academicians must temper wrong influences that might be inclined to place a value on the "educational product" on the basis of cost alone. Conversely, they must accept the practical realism of accountability for the educational dollar. The consolidated academic and administrative effort should be directed toward achieving both qualitative and quantitative measures of higher education outputs. The interrelationship of these measures will become the true level of effort or productivity index of the community college.

Level of effort can be "user-oriented" or "producer-oriented" in which the student and public are the users and the faculty/staff are the producers. In this sense the primary utility of the cost

study rests in its function to test the level of output in terms of students, student credit hours, degrees or in terms of faculty effort in instruction or supporting functions. This becomes a phenomena question impacting upon the procedures and techniques to be used for the two separate purposes. The strategy should be delineated for both approaches and leave the combination of the two as a more sophisticated refinement in unit cost studies.

The user-oriented cost study is exemplified by the induced course load matrix in WICHE/NCHEMS materials. This model is a refined mathematical prediction model that can be made applicable to community colleges but has greater application in universities. The complexities of numerous students levels, degree programs, and coefficients should be studied for their conceptual meaning to the community college. The impact of a new program or an enrollment surge is an important concept but should constitute planning input rather than a design end of the basic cost study. The resource requirements prediction model (RRPM-1) in NCHEMS work is an advanced planning model. The RRPM-1 application to community colleges should be considered as a complement to and not a substitute for a unit cost study.

Other user-oriented studies place emphasis on the credit hour production by subject area. The application of the HEGIS taxonomy of disciplines will facilitate the cross-reference necessary to compare institutions by subject area. The aggregation or clustering (Florida system) of courses provides a study of subject fields, departments, and programs. User-oriented studies have data tables collected, tabulated,

and articulated primarily in the accounting terms described earlier in this paper.

Faculty Effort Analysis.

The "producer-oriented" aspect in level of effort discussions relates to faculty effort analysis. Faculty effort in this sense means the assigned activities in such functional areas of instruction, counseling, research, administration, and public services. A faculty effort analysis is the review of major or consistent functions in which the faculty does carry out a responsibility that would otherwise require a full time person. This assigned task concept allows for internal guide and accountability measure for the department head.

The level of effort in faculty load studies is a time assignment concept that relates to unit costing through pro-ration of salaries to the various assignments. The apparent usefulness of this level of effort concept is in managerial decisions at the campus level.

Payrolls, budgets, faculty contracts, and similar official records usually do not provide an adequate indication of the specific activities or functions performed by faculty in their service to the institution. More specifically, these records may not provide data concerning the division of effort among activities or services performed. Consequently, a reporting system is usually needed to reflect the division of time and effort of faculty members between activities or assignments upon which allocation of salary dollars can be made.

The Faculty Assignment Report Form, to be submitted for each faculty member, should provide for optimum uniformity of classification and

consistency of definition of categories of faculty activity. It further should provide a method of review by supervisory authority which is essential to departmental and institutional consistency. After initial experiences accompanied by adequate instruction and educational effort, it has been found that faculty service data collected by this method are quite accurate and consistent.

The report should contain assigned activities only, and not detailed listings of activities usually associated with an official assignment.

Exhibit C and D are sample data collecting instruments for faculty-effort analysis. These forms are participatory in nature and may be completed by department heads or individual faculty members.

Summary.

Unit costing has been a part of the systems taxonomy that educators began to use without understanding. Its application to education is becoming clearer and more extensive due to a cadre of theoreticians, technicians and general practitioners. A former stand-alone activity, it now appears that unit costing may become an integral part of the funding process. The initial utilization may be the averaging of previous costs and addition of a percentage to determine the funding base. In some states it will be one of the verification factors in presentations to the supporting Board or legislative appropriations committee. In others, it may become the primary consideration in the funding equation.

The variance between requests and appropriations must be reduced at each funding level. The financial crisis of higher education contains

the element of tight money as well as competition with other institutions and agencies. The educator must take the lead to alleviate the situation. Definition of products and services in terms of their quality, level, and cost per unit seems the most rational solution to a problem of this widespread impact. It assumes the development of some means of identifying and measuring benefits. At a time when the need for higher education is challenged, and after two centuries of operation, we are about the task of being objective in definitions of education.

Pitfalls and Recommendations.

1. Excessive detail can destroy a total faculty effort study.

2. Analyze the consistency of data in longitudinal studies and report back to the report makers.

3. Useless effort will become evident if in fact plans are not available to adjust the level-of-effort as a result of cost study findings.

4. Do not discount national efforts to analyze the worth and values within education through level-of-effort concepts and program emphasis/manpower studies.

EXHIBIT C: FACULTY ASSIGNMENT REPORT

for (Term) _____ (Year) _____

GENERAL INFORMATION

District No. _____ College Name _____

Campus _____ Department _____

Please provide the identifying personal data requested.
Please read attached instructions before using this form.

Name _____ Employee No. _____
(Last) (First) (Initial)

Sex _____ Marital Status _____ Highest Degree _____

Title/Rank _____ Employee Status (Check one) Full-time 100% / Part-time ___% of full load

SUMMARY OF TOTAL ASSIGNMENT (Complete this section LAST)

	Credit Hours or Equivalent	Percent of Assignment	FOR OFFICE USE ONLY FTE	FOR OFFICE USE ONLY S
A. Direct Instruction				
B. In-Direct Instruction				
C. Departmental Research				
D. Student Personnel Serv.				
E. Learning Resources Ctr.				
F. Administration				
G. Organized Research				
H. Public Service				
Total		100%	Total	

DETAILED ASSIGNMENT REPORT

A - DIRECT INSTRUCTIONAL ASSIGNMENTS: Use Standard Abbreviations from Class Schedule

	% of Total Assignment	Course Name	Course Number	Section	Level	Enrollment	Credit Hours Per Course	Day or Evening (D/E)	Type of Instruc.	Weekly Contact Hours	Shared by*
	%										
	%										
	%										
	%										
	%										
	%										
Total	%										

*Please provide name of person with whom course is shared, if any, and describe method of sharing on reverse side of this sheet.

EXHIBIT D: FACULTY STATISTICAL REPORT

SOUTHERN ILLINOIS UNIVERSITY

NOTE: PLEASE REMOVE and READ the instructions on part 6 (last sheet) of this form before completing this report.

I. STAFF IDENTIFICATION DATA

TO THE STAFF MEMBER NAMED: CHECK EACH ITEM OF PERSONAL DATA GIVEN. CORRECT WHERE NECESSARY. ADD MISSING DATA.

• Seperate reports are required if budgeted to two or more accounts.

SOCIAL SECURITY NO. | LAST NAME | FIRST | INITIAL | SEX | HIGHEST DEGREE | ADMINISTRATIVE TITLE | ACADEMIC RANK | CAMPUS | QUARTER | YEAR

BLDG. CAMPUS OFFICE LOCATION | ROOM | OFFICE PHONE | HOME STREET AND NUMBER | HOME CITY AND STATE | HOME PHONE | % OF TOTAL APPOINTMENT

THIS REPORT FORM FOR REPORTING ONLY THE DEPARTMENT OR UNIT LISTED BELOW:

DEPARTMENT OR UNIT | % APPOINTMENT | ACCOUNT NUMBER

II. TEACHING ASSIGNMENTS

A. DIRECT INSTRUCTIONAL ASSIGNMENTS (Read Definition)

% OF THIS ASSIGNMENT

Please estimate the percentage of your assignment budgeted to this department or unit that is devoted to direct instruction and enter it to the left of △ above. Also enter your estimate of the average clock hours per week you devote thereto. Please audit the entries below and enter in pencil any corrections or any college credit instructional assignment not listed. In the blanks provided at the left of each line entry indicate your best estimate of the percentage of total Direct Instructional Assignment (A) effort you devote to each of the entries. Do not duplicate instructional assignments if you serve a "split" appointment in two or more accounts.

1. ON-CAMPUS INSTRUCTION

% OF A	DEPARTMENT	COURSE NUMBER	SECTION	CREDIT HOURS	CONTACT HRS. PER WEEK	INSTR. TYPE	NO. OF STUDENTS	SHARED BY *

*INDICATE NAME(S) OF PERSON(S) WITH WHOM INSTRUCTION IS SHARED.

2. EXTENSION TEACHING

Please enter below the required information concerning any extension classes you are teaching. Include in your estimated proportion of direct teaching assignment for each class the required travel time.

% OF A	DEPARTMENT	COURSE NUMBER	LOCATION	CREDIT HOURS	CONTACT HRS./WK.	INSTR. TYPE	NUMBER OF STUDENTS: FR.-SOPH.	JR. SR.	UNDERGRAD	GRAD

← TOTAL % OF A (DIRECT INSTRUCTIONAL ASSIGNMENTS MUST EQUAL 100%)

B. INDIRECT INSTRUCTIONAL ASSIGNMENTS (Read Definition)

% OF THIS ASSIGNMENT

Please estimate the percentage of your assignment budgeted to this department or unit that is devoted to indirect instructional activities to which you are assigned in lieu of teaching or other assigned activity. Also enter your estimate of the average number of clock hours per week you devote thereto in the present quarter.

Identify. (describe if necessary)

III. NON-TEACHING ASSIGNMENTS (Read Definition) Please enter in the space provided for each activity your estimate of the percentage of your assignment budgeted to this department or unit that is devoted to each of the following activities and your estimate of the number of clock hours per week devoted thereto in the present quarter. Please identify the activity by brief description. Organized Research shall be identified by project or agency title.

% OF THIS ASSIGNMENT	AVERAGE HRS. PER WEEK	ACTIVITY — IDENTIFY (DESCRIBE IF NECESSARY)
		C. DEPARTMENTAL RESEARCH
		C_2 ORGANIZED RESEARCH
		D. COUNSELING
		E. LIBRARY
		F. ADMINISTRATION
		G. EXTENSION AND PUBLIC SERVICE
		H. OTHER

IV. SUMMARY

To assist in the tabulation of data and to serve as a check on your own calculations and estimates please enter below the total of percentages you assigned to activities A, B, C, D, E, F, G, H, and the sum of clock hours per week devoted to these activities. The total assigned to all activities should always equal 100% for each department or unit to which budgeted.

Total % | Total Clock Hours

V. DEPARTMENT/DIVISION REVIEW

Supervising Authority | Date

FORM 1-4981 2 REV 9/66 — DO NOT WRITE BELOW THIS LINE

A	B	C1	C2	D	E	F	G	H	HRS	ACCT #	DATE	DEPT	FILE	CARD
												01	22	

Section VIII

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